What is claimed is:

1. A CRC calculation method for a message, comprising the steps of:

defining a generator matrix having a maximum value of the non-zero entries for representing an LFSR corresponding to a form for linearly mapping an input vector to a remainder vector;

transforming the generator matrix to a similar matrix for reducing the maximum value of the non-zero entries;

arranging the message inputted in the form to the input vector; and

transforming the message to a CRC result by multiplying the similar matrix to the input vector.

2. A method according to claim 1, wherein the form is a byte-wise form.

3. A method according to claim 1, wherein the form is a doubleword-wise form.

4. A method according to claim 3, wherein the step of arranging the message to the input vector comprises padding the message with one or more dummies.

5. A method according to claim 3, further comprising initiating the LFSR with a specific value.

6. A method according to claim 5, further comprising identify a length type of the message and determining the specific value in accordance with the length type.

7. A method according to claim 3, further comprising comparing the CRC result with a specific pattern.

8. A method according to claim 7, further comprising identify a length type of the message and determining the specific pattern in accordance with the length type.

9. A method according to claim 1, wherein the step of transforming the message to a CRC result comprises performing an iteration procedure between the remainder vector and the input vector.

10. A method according to claim 1, wherein the step of transforming the generator matrix to a similar matrix comprises the steps of:

selecting an invertible matrix;

generating an inverse matrix of the invertible matrix;

and

multiplying the invertible matrix, generator matrix and inverse matrix.

11. A method according to claim 10, further comprising inserting a flip-flop procedure between the multiplying of the invertible matrix and generator matrix for forming a pipeline architecture.

12. A CRC calculation system for generating a CRC result from a message, comprising:

means for arranging the message inputted in a form to an input vector;

a generator matrix having a maximum value of the non-zero entries for representing an LFSR corresponding to the form for linearly mapping the input vector to a remainder vector; and

means for transforming the generator matrix to a similar matrix for reducing the maximum value of the non-zero entries; and

means for multiplying the similar matrix to the input vector.

13. A system according to claim 12, wherein the form is a byte-wise form.

14. A system according to claim 12, wherein the form is a doubleword-wise form.

15. A system according to claim 14, further comprising one or more dummies for padding the message thereto.

16. A system according to claim 14, further comprising a specific value for initiating the LFSR therewith.

17. A system according to claim 16, further comprising means for identifying a length type of the message and determining the specific value in accordance with the length type.

18. A system according to claim 14, further comprising means for comparing the CRC result with a specific pattern.

19. A system according to claim 18, further comprising means for identifying a length type of the message and determining the specific pattern in accordance with the length type.

20. A system according to claim 12, wherein the

means for transforming the generator matrix to a similar matrix comprises means for multiplying the generator matrix to an invertible matrix.

21. A system according to claim 20, wherein the means for transforming the generator matrix to a similar matrix comprises means for multiplying an inverse matrix of the invertible matrix to the generator matrix.

22. A system according to claim 12, further comprising means for forming a pipeline architecture between the message and CRC result.